



Health Information Technology Council Report to the Massachusetts Legislature

Reporting Period: January 2019 to December 2019

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by the Health Information Technology Council

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Executive Summary

The Massachusetts Health Information Exchange Highway (Mass Hlway) is a health information exchange (HIE) program within the Commonwealth of Massachusetts' Executive Office of Health and Human Services (EOHHS) and advised by a Health Information Technology Council (HIT Council) composed of consumer, provider, legal and policy, and technology stakeholders. In 2019, the Mass Hlway saw several positive advancements in the exchange and interoperability, including the development of the Event Notification Service (ENS) framework, as well as the upgrade of the Hlway's Direct Messaging system. There were also significant policy developments at the federal level, where the Office of the National Coordinator for Health Information Technology (ONC) and the Centers for Medicare and Medicaid Services (CMS) proposed a pair of rules to improve the interoperability of health information and address barriers to HIE adoption.

Mass Hlway 2019 operations marked a successful year through key improvements to provider usage, technical infrastructure, and adoption of new services. The Mass Hlway continues to leverage the statutory-based connection requirement under M.G.L. Chapter 118I, Section 7, to increase hospital, health center, and physician connections to the Hlway. In conjunction with the Department of Public Health (DPH), providers use Hlway Direct Messaging as the uniform transporting mechanism for public health reporting. Hlway Direct Messaging underwent a technological upgrade during the summer of 2019 to expand its connected network to include more providers locally and nationally. Hlway account managers and service managers helped 252 providers migrate their connections to the upgraded system.

The Mass Hlway engaged in the design and development of new HIE initiatives in 2019. First, it amended its policies to create a new category of HIE services – Hlway-facilitated Services – that seek to leverage existing services and technologies in the market through a regulatory framework. ENS represents the first offering within this new category of Hlway-facilitated Services and will leverage existing market solutions through state-certification to expand access to ENS for providers across the Commonwealth. Vendor certification is expected to be completed in early 2020.

1: Introduction

Under M.G.L. c. 118I, the Massachusetts Legislature authorized EOHHS to coordinate and promote the development of a statewide HIE.¹ EOHHS created the Mass Hlway program to embody those HIE coordination and promotion efforts. The same enabling statute also created the HIT Council to serve as an advisory body to EOHHS and the Hlway program.¹

This HIT Council Report to the Massachusetts Legislature fulfills the statutory requirement under M.G.L. Chapter 118I, Section 15, for the HIT Council to file an annual report that: (a) describes the activities of the HIT Council; and (b) describes the progress made in developing the statewide health information exchange and recommending legislative action, if deemed appropriate.

This report provides an update on notable accomplishments and activities related to the state's HIE that occurred between January 1, 2019 and December 31, 2019. This report follows the previous report, which covered activities through December 31, 2018.

¹ M.G.L. c. 118I, Health Information Technology.

The Mass Hlway promotes the adoption of HIE through a variety of policy and technical levers. Currently, it operates a Direct Messaging network (Hlway Direct Messaging) that offers healthcare entities the ability to securely and seamlessly transmit vital health data electronically, regardless of affiliation, location, or differences in technology. The Mass Hlway also has a health information technology consulting service, Hlway Adoption Utilization and Support (HAUS), to help Medicaid providers make their systems interoperable by assessing a client's technology and workflow, developing a plan to meaningfully exchange health data, and supporting the implementation of that plan. The Mass Hlway is currently implementing a framework to leverage existing market-based solutions to provide ENS to providers in the Commonwealth. The Hlway's activities aim to increase the Commonwealth's adoption of health information exchange and technology to improve care coordination, quality, patient satisfaction, and public health reporting, while containing costs.

2: Mass Hlway Operations

Mass Hlway 2019 operations included important improvements to provider usage, technical infrastructure, and adoption of services. The Mass Hlway saw an increase in submitted attestations with all acute care hospitals and almost every community health center. Commonwealth providers continue to use Hlway Direct Messaging as the uniform transporting mechanism for public health reporting. Hlway Direct Messaging underwent a technological upgrade over the summer of 2019 to increase its connected network to include more providers locally and nationally. Hlway account managers and service managers helped 252 providers migrate their connections to the upgraded system.

A: Connection Requirement

As set forth in M.G.L. Chapter 118I, Section 7, and as detailed in the Mass Hlway Regulations (101 CMR 20.00), healthcare providers in the Commonwealth are required to connect to, and to utilize Hlway Direct Messaging. This requirement is phased in over a four-year period, intended to incrementally encourage the use of Hlway Direct Messaging for provider-to-provider communications and bi-directional exchange of health information.

Each organization shows how it met its annual requirement to connect to the Mass Hlway by submitting an attestation form. If an organization had not fulfilled the connection requirement, it was required to submit a Health Information Exchange Exception Form explaining why the connection requirement had not been met and the organization's plans to comply with the requirement. During the 2019 attestation period, Acute Care Hospitals were required to submit a Year 3 Attestation Form; Medium/Large Medical Ambulatory Practices and Large Community Health Centers were required to submit a Year 2 Attestation Form; and Small Community Health Centers were required to submit a Year 1 Attestation Form.²

In the winter and spring of 2019, the Mass Hlway considered how to improve the 2019 attestation process through which healthcare providers declare to the Commonwealth whether they have fulfilled the connection requirement. To improve the process, the Mass Hlway clarified language on the attestation forms, added a "save and continue" function to the forms so they could be completed over multiple sittings, and intensified outreach to Medium/Large Medical Ambulatory Practices (via targeted

² Providers must meet harder attestation benchmarks each year to qualify as connecting to the Hlway. In Attestation Year 1, a provider must either send certain information to DPH or send or receive information with another provider. Attestation Year 2 requires a provider to send *or* receive information with another provider. Attestation Year 3 requires a provider to send *and* receive information with another provider.

emails and a postal mail advisory). Overall, these improvements in process resulted in a higher percentage of completed attestation and exception forms in 2019.

At the close of the 2019 attestation period, a total of 192 organizations had submitted either an attestation or exception form. Among these organizations were 88 Medium/Large Medical Ambulatory Practices (60 attestations, 28 exceptions), 37 Community Health Centers (34 attestations, 3 exceptions), and all 67 Acute Care Hospitals (43 attestations, 24 exceptions). The HIway analyzes these submissions to identify trends and potential opportunities for outreach to provider organizations to improve HIE.

B: Clinical Gateway Nodes to the Department of Public Health

(1) Background

The Clinical Gateway (CG) nodes are Mass HIway software applications that connect providers securely to DPH and other state health care agencies for public health reporting. Providers send public health reports via Direct Message to the Mass HIway, which transforms the message into a useable format for agency systems. The CG node transformation processes include decryption of the original message, validation that the data is correctly submitted, and transformation of the message into a format acceptable to the receiving system. Reporting providers and state agencies benefit by allowing each group to keep their existing technology infrastructure while the CG node does the transformative work to allow seamless transfers.

Each of the following CG nodes is a separate application which supports a corresponding public health reporting back-end application:

- Children's Behavioral Health Initiative (CBHI)
- Childhood Lead Poison Prevention Program (CLPPP)
- Electronic Lab Reporting (ELR)
- Opioid Treatment and TB Reporting Programs (I-EATS)
- Massachusetts Cancer Registry (MCR)
- Massachusetts Immunization Information System (MIIS)
- Syndromic Surveillance Program (Syndromic)

The architecture for the existing CG nodes was developed in 2012 with the launch of HIway Direct Messaging. The CG nodes were scaled up by copying the first CG node and recoding it as a separate application to be able to connect to a respective DPH system. The multiple CG nodes are currently running in the EOHHS Private Cloud Data Center, LogicWorks Virtual Gateway (VG).

(2) Business and Architectural Review of the CG Nodes

The Mass HIway conducted a business and architectural review of the CG nodes in 2019 with the goal of identifying current and future needs and challenges of the CG nodes. The comprehensive review identified the following challenges:

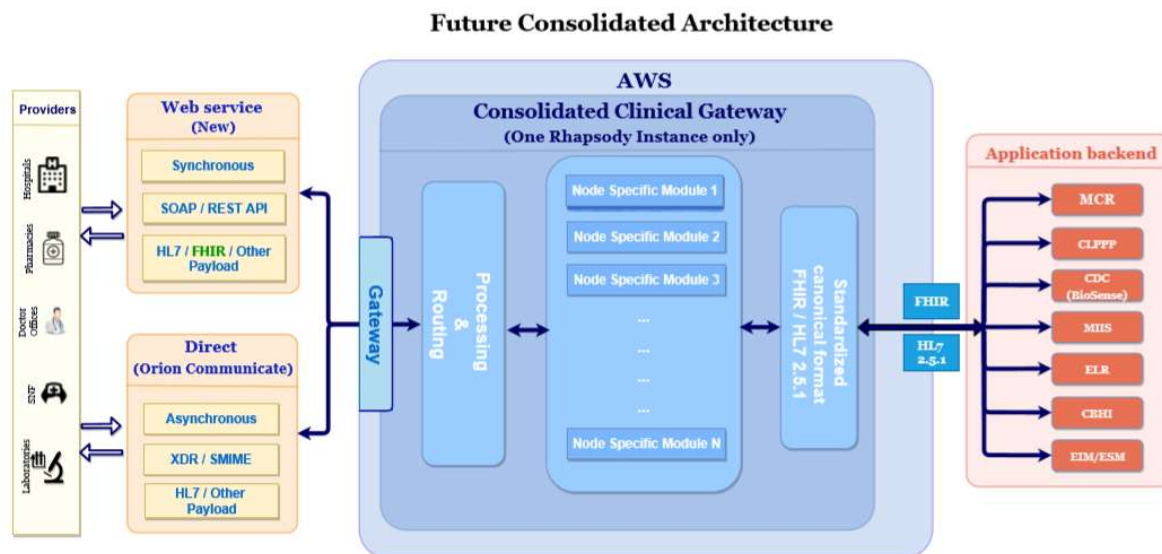
- Infrastructure not positioned to meet emerging FHIR-based API standards.
- Infrastructure not easily scalable or extensible.
- Infrastructure requires long turnaround time to update nodes including routine software updates.

(3) Consolidated Clinical Gateway Program

Starting in October 2019, and intended to be complete in Q1 of 2021, the Mass HIway team began to transform the current set of CG nodes into a single Consolidated Clinical Gateway (CCG) application. The CCG will allow the HIway to resolve the issues identified in the business and architectural review discussed above. The CCG will meet the developing national trends by creating a new web service link to DPH using APIs and FHIR. The CCG will undergo a technical shift from the current independent multiple applications to a single application for all public health reporting needs. This shift will improve scalability for future DPH reporting requirements as the Mass HIway will only need to create a single module, A single CCG will streamline the upgrade process by having a single upgrade to the CCG rather than individual updates for each of the seven CGs. In addition, the CCG will move to another data center, Amazon Web Services, which will result in higher efficiency as operating resources required will be reduced and usage fees lowered compared to the VG environment.

The following exhibit presents a high-level technical view of the proposed technical architecture of the CCG (see Exhibit 1).

Exhibit 1



C: HIway 2.0

HIway 2.0 was an initiative led by the Mass HIway to upgrade its Direct Messaging system. The HIway achieved this upgrade by moving Mass HIway operations to Communicate, Orion Health's commercial off-the-shelf solution. HIway 2.0 improves the ability of HIway Direct Messaging to connect to providers around the country.

(1) HIway 2.0 Background

The Mass HIway was initially developed in 2012 by Orion Health as a custom solution (HIway 1.0) for Massachusetts. In January 2018, EOHS and Orion Health executed a new contract for EOHS to transition from the custom solution to Communicate.

Communicate is a Health Information Service Provider (HISP) used by more than 20 clients across the US. The Communicate HISP is accredited by the Electronic Healthcare Network Accreditation Commission (EHNAC) to participate in DirectTrust. DirectTrust is a national framework that allows any user of a DirectTrust HISP to send or receive Direct messages with any other provider using another DirectTrust-accredited HISP. Thus, by transitioning to Communicate as the platform for HIway Direct Messaging, connected Massachusetts providers can communicate with more providers within Massachusetts and nationally.

On the technical side, Communicate allows for faster enhancements, product updates, and functionality improvements through economies of scale. The system is maintained using internationally recognized standards for health information exchange. Using Communicate, which is a Software as a Service (SaaS) product, enables the state to leverage Orion Health's infrastructure, and no longer maintain state infrastructure to operate the system.

(2) HIway 2.0 Migration

HIway 2.0 became available for use in June 2018 after the migration of all CG nodes, and all HIway Participant migration projects were completed by June 2019. Upon completion of the migration, provider access to HIway 1.0 was shut down, following an extensive communications and awareness campaign. All HIway Participants successfully made the transition to the new system.

a: Clinical Gateway Node Migration

HIway 2.0 Migration began with the seven CG nodes. Each CG node was upgraded to adhere to the latest standards and then migrated one by one. This effort was completed in June 2018.

b: Participant Migration

During the project, the HIway Operations Team migrated all 316 active connections, used by 252 HIway Participants, from HIway 1.0 to HIway 2.0. To ensure a secure environment, a key component of the migration was the identity proofing of all participants. Identity proofing is a way to ensure that messages are delivered to the intended recipient, through a chain of verified identities. The HIway 2.0 identity proofing process uses a third party and requires a notarized form from each HIway Participant organization.

D: 2019 HAUS Program Update

(1) Background

The primary goal of the HAUS program is to improve patient transitions of care among Medicaid provider organizations through electronic provider-to-provider communication. A secondary goal of this program is to assist providers in achieving Meaningful Use measures through integration of electronic exchange of information.

The HAUS program is aimed at offering high-touch, hands-on consulting services to eligible provider organizations to ensure use cases are fully implemented by sending and receiving organizations. Typical use cases and the reasoning behind them include:

- Sending a referral to a specialist with patient information such as current condition, reason for consultation, and expected outcome of consultation. The use case goal is for specialist treatment to be more effective; the expectations of the primary care provider (PCP) are clear at

the outset and the specialist has all patient information at hand (therefore does not have to engage in duplicative testing to understand the presenting illness).

- Sending a discharge summary from a hospital to a skilled nursing facility (SNF). Discharge summaries are often lost in transit when given as a paper copy, SNFs need Discharge Summaries to ensure continuity of care.
- Exchange of care plans between behavioral health community partners (CP) and PCPs in an Accountable Care environment.

The following are examples of typical activities performed during a HAUS engagement:

- Creating cross-functional teams between participants to enhance coordination. These teams may include clinical, information technology, and business leadership to ensure that the needs of all stakeholders (clinicians, clinical staff, etc.) are addressed and that the information exchange approach genuinely improves patient care, not just complies with information exchange regulations.
- Facilitating “face-to-face” communication between multiple provider organizations to define clinical information exchange requirements and protocols.
- Documenting agreed-upon clinical protocols, including the content of clinical documents to be exchanged and release triggers for exchange.
- Creating workflows reflecting clinical protocols to ensure the right information is available when and where it is needed to accomplish goals such as streamlined discharges from a hospital to a SNF.

(2) HAUS Progress

The HAUS program completed two engagements in 2019, and there are another twenty active engagements underway with a variety of organizations including Visiting Nurse Associations (VNAs), ACOs, Community Health Centers, small and medium ambulatory practices, and large Acute Care Hospitals.

The HAUS program has focused on MassHealth ACO organizations and their Community Partner (CP) organizations. The bi-directional communication between ACOs and multiple behavioral health and Long-term Services and Supports (LTSS) CPs remains a critical function to ACO implementation. Inquiries about the HAUS program have increased as organizations begin to turn their attention toward the need for improved communication and secure exchange of health information among these entities. The HAUS team is also currently working with several community health centers that participate in the MassHealth ACO program.

The team has also provided HAUS services to all providers who have been unable to meet the Mass HIway connection requirement. The HAUS team is supporting organizations experiencing challenges meeting these requirements due to a lack of a trading partner, workflow challenges, or other issues. The team has seen an increase in the number of organizations contacting the HAUS Account Management team for assistance meeting the connection requirement. The table below lists a sample of the organizations the HAUS team is engaging with and the types of use cases that are under discussion (see Table 1).

Table 1

Provider Organization	Use Case	Status
North Shore Community Health	Referrals to orthopedic specialist	Complete
Hallmark PHO Phase 1	Referrals to specialists	Complete
Women's Health Care	Receiving discharge summaries from Beth Israel Deaconess Medical Center	Complete
BayPath Elder Services	Exchanging information with rehab facilities	In process
Jewish Healthcare Center	Receiving discharge summaries and CCDs from hospitals	In process
Merrimack Valley ACO	Exchanging care plans with CPs	In process
South Boston Community Health Center	Receiving ADTs and discharge summaries from Tufts Medical Center	In process
Broad Reach Liberty Commons	Pending	Exploratory
Natick Walpole VNA	Sending authorizations to insurance companies	Exploratory

3: Future HIE Initiatives

The Mass Hlway engaged in the design and development of new HIE initiatives in 2019. First, it amended its regulation to create a new category of HIE service offerings – Hlway-facilitated Services – through a regulatory framework that aims to leverage existing market solutions rather than building and/or operating state-run solutions. The Market-based ENS Initiative represents the first of such services and seeks to leverage existing ENS solutions to expand the service to more providers in the Commonwealth. The Hlway also began a research project regarding the scalability of Query HIE and FHIR in the Commonwealth.

A: Regulatory changes: Hlway-facilitated Services

EOHHS promulgated new amendments to the existing Hlway regulations found at 101 CMR 20.00 over the summer of 2019. EOHHS published the proposed regulations on June 28, 2019. It followed with a public hearing on July 19, 2019 to gather public comments. After considering the public comments, EOHHS finalized the amendments on October 4, 2019.

The amendment to the Hlway regulations includes the following key components:

- 1) Creates a regulatory structure for EOHHS to implement HIway-facilitated Services, which will allow EOHHS to promote health information exchange by leveraging market-based solutions, with ENS being the first of such services.
- 2) Defines the rules, including standards relative to data use, privacy, security, and integrity, governing the Statewide ENS Framework whereby services are provided by Certified ENS Vendors.
- 3) Establishes penalties for providers and vendors who do not adhere to data privacy and protection standards and other program participation requirements.

The HIway-facilitated Service category sets the foundation for allowing the Mass HIway to provide services that are not state-operated (as opposed to the state-operated HIway Direct Messaging or HIway-sponsored Services). HIway-facilitated Services will involve the state leveraging market-based HIE solutions for healthcare providers and healthcare organizations that promote care coordination. The HIway will not use or analyze health data transmitted by HIway-facilitated Services. HIway-facilitated Services may have an opt-in/opt-out mechanism determined and implemented at the provider level, as with HIway Direct Messaging.

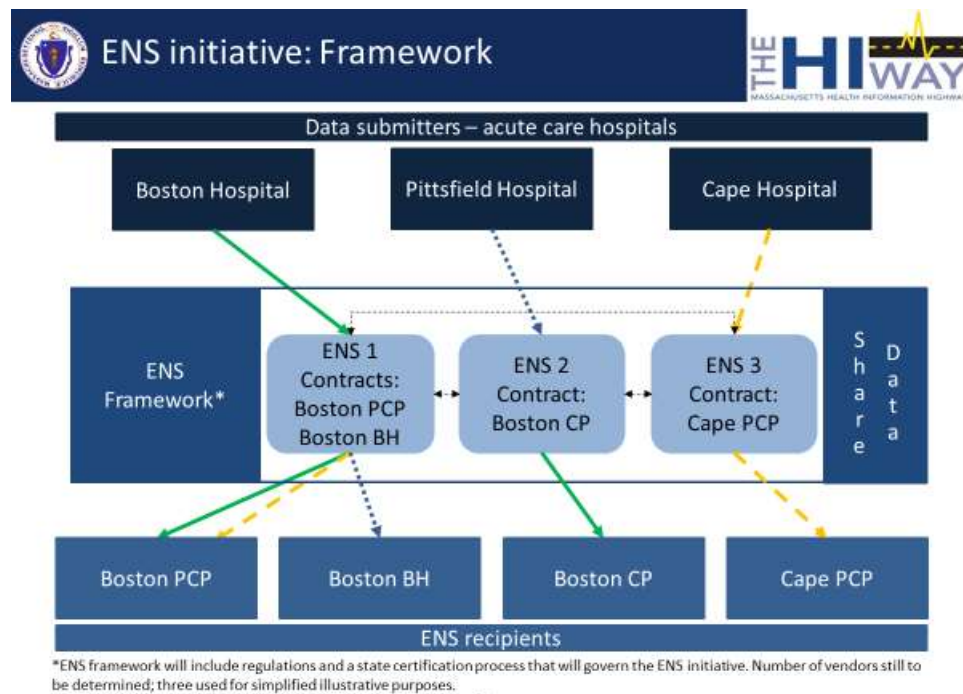
B: Event Notification Service – Update

ENS is an electronic tool used in health care. ENS can be used for many healthcare purposes, and a common example is notifying providers of a patient's admission, discharge, or transfer to or from a hospital or emergency department. ENS can provide real-time electronic notification to healthcare providers regarding a patient's transition to or from healthcare facilities.

(1) ENS Background

EOHHS has long recognized the benefits of expanding ENS to all providers to best serve patients across the healthcare continuum. In February 2018, EOHHS issued a Request for Responses (RFR) to procure a vendor to develop a state-operated Admit, Discharge, Transfer data (ADT) repository with an option to operationalize ENS. EOHHS determined that the advances in the marketplace rendered the creation of a state-operated ADT repository and ENS duplicative. Accordingly, in October 2018, EOHHS withdrew the RFR and issued a new RFI to further explore the feasibility of leveraging existing solutions in the market. The RFI and further stakeholder engagement confirmed that leveraging existing solutions through a market-based approach to ENS was the more efficient and prudent approach to implementation. In October 2019, EOHHS updated the existing HIway Regulations, 101 CMR 20.00, to establish the framework for the market-based ENS. Below is a graphical representation of what the framework will look like (see Exhibit 2).

Exhibit 2



(2) ENS Certification Process

In November 2019, EOHHS issued a Request for Applications (RFA)³ for the certification of ENS vendors to participate in the Statewide ENS Framework. Applications were due in January 2020 and the announcement of certifications will occur in February. The Statewide ENS Framework will consist of ENS Vendor Applicants certified by EOHHS who will be responsible for collecting ADTs, sharing ADTs, and providing notification to providers. All acute care hospitals will be required to submit ADT data to at least one of these Certified ENS Vendors by April 1, 2020.⁴ Certified ENS Vendors will be required to share the ADTs they collect with all other Certified ENS Vendors, pursuant to the submission requirements. Thus, the Statewide ENS Framework will generate a universal data set of ADTs from acute care hospitals. This will allow ENS recipient providers such as primary care providers, behavioral health providers, and care coordinators to subscribe to a single Certified ENS Vendor and receive notifications from any acute care hospital in the state. The Certified ENS Vendors will be expected to run matching algorithms on the ADT data they receive to generate notification to ENS Recipients for the ENS Recipient's patient panel.

C. Query HIE & FHIR research project

In March 2019, the Massachusetts eHealth Institute (MeHI) held a forum on Carequality and CommonWell followed up by a HIT Council discussion on the potential of Query HIE and its scalability in the Commonwealth. At the end of 2019, the HIway team began to explore business and technical requirements related to utilization of Query HIE and FHIR as additional technological modalities for HIE. The HIway will be developing expertise in both areas through a combination of stakeholder interviews

³ [Market-based ENS Initiative RFA](#)

⁴ 101 CMR 20.08 as extended by [EOHHS Administrative Bulletin 19-20](#)

and documentation review to generate training materials to help educate providers about use of Query HIE. In addition to reviewing Query HIE, a similar parallel track for FHIR will be conducted to potentially help increase FHIR adoption.

4: Monitoring federal developments

The HIT Council and Mass HIway have been following the federal developments in HIE policy and regulations. The United States Department of Health and Human Services (DHHS) and its sub-agencies, including CMS, ONC, and the Substance Abuse and Mental Health Services Administration (SAMHSA), released multiple policy-making documents throughout 2019 that set goals and priorities for improving interoperability. The federal government looked at technical levers such as promoting the adoption of APIs and FHIR data standards. Additionally, they looked to harmonize privacy policies, HIPAA & Part 2, as they relate to healthcare entities being able to share data with one another and with patients.

Specifically, there are provisions that tie into the work of the HIT Council and Mass HIway. The federal rules, if finalized as proposed, would require hospitals to send out ADTs, which would align with the HIway's ENS initiative. The harmonization of federal privacy policies will improve HIE utilization by creating clearer standards about when a provider can share patient information. The proposed rules were not finalized in calendar year 2019 and will continue to be monitored throughout 2020.

5: Monitoring other state Health IT developments

A: Digital Health Council

The Digital Health Council, created by Executive Order #574 in 2016 by Governor Baker, was charged with developing a set of strategic proposals to foster and support a leading ecosystem for digital health in Massachusetts. The Digital Health Council was co-chaired by Vertex President and CEO Jeffrey Leiden and Housing and Economic Development Secretary Michael Kennealy and included several members of the HIT Council. The Digital Health Sector spans a variety of technologies including electronic health records, consumer wearable devices, care systems, payment management, big data analytics, and telemedicine. Initiatives recommended by the Digital Council focus on growing, enabling, and supporting the digital health ecosystem by leveraging regional strengths and expertise to deliver resources, infrastructure and access to data, as well as increasing collaboration with the world class academic and scientific leaders in Massachusetts. The Digital Health Council developed recommendations to support the Massachusetts digital health ecosystem, including promoting the start-up landscape in Boston, developing a network of digital health sandbox environments, providing support to start-ups to develop privacy and security standards, and outlining a framework to promote additional clinical data sharing. The HIT Council will continue to monitor and support the implementation of the recommendations as necessary.